Accessible Learning Sources: A Need Analysis on Maritime English Learning Apps

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Maritime English is defined as the English language used by seafarers both at sea and in port and by individuals working in the shipping and shipbuilding industry. The teachers are required to make the students skillful and ready to work in maritime sectors once they graduate. The existing and relevant maritime English learning materials following STCW 2010 curriculum in Indonesia are still rare and limited. This study aims to conduct a need analysis of android and web-based Maritime English apps based on the students' perspectives. This study uses questionnaires shared and completed randomly by 318 students from different majors and at Sekolah Tinggi Ilmu Pelayaran (Maritime Higher Education Institute) Jakarta. The data is gathered and analyzed accordingly to create the essential concept of the MarEng apps design. The questionnaire result indicates that most of the participants need an ME learning platform in order for them to have better access to and to practice the required knowledge and skills. Explicit bilingual instructions and features like video, audio, and text are also preferred to be incorporated. It is suggested to start from the elementary level and cover the four skills, especially listening, speaking, and pronunciation. It is so suggested that the platform can be constructed in easy and fun UI/UX covering the required content.

1. INTRODUCTION

The rising impacts of the Covid-19 pandemic have affected vocational maritime education, especially in terms of teaching and learning Maritime English. In line with the technological advancement that makes the teaching and learning processes more manageable in many ways, educators are required to immediately adapt to the current situation and make vast creative innovations. Teachers are required to make the students skilful and ready to work in maritime sectors once they graduate. The higher demands are not without reason. Mastering the English language skills has been an absolute requirement mentioned in STCW 2010, which is later explained further in the IMO Model Course 3.17 Maritime English (IMC 3.17). However, through his research, Dirgeyasa (2018) concluded that the alumni and the students of maritime education and training (MET) have low English proficiencies, both in oral and written English. He added that the existing and relevant maritime English learning materials following the STCW 2010 curriculum are still rare and limited.

Next, rapid technological changes have been proven to positively impact most areas, including education. Teachers, practitioners, and researchers are aware of expanding technologies to better education (Motteram, 2013; Paulo, 2016). Some studies have proven that it contributes to positive learning

experiences for learners and effective teaching and learning processes (Oers, 2015; Peterson, 2016).

Based on the background above, the provision of an independent learning tool integrated with technology or digital platform for maritime students is considered a necessity to meet the required standard of maritime human resources and enhance Indonesia's maritime graduates' quality in terms of maritime knowledge and communication.

Furthermore, the researchers intend to design a prototype of MarEng Android and web-based apps of by doing preliminary research. To sum up, this study aims to conduct a needs analysis of Android and web-based Maritime English apps based on the students' perspectives.

2. LITERATURE REVIEW

2.1. The Nature of Maritime English

Maritime English (ME) can generally be classified as English for specific purposes (ESP). Compared to general English, ESP underlines the teaching of English for vocational or professional purposes. Hutchinson et al. (1987:19) stated: "ESP is an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning." Dudley-Evans (1997) added that it is defined to meet the specific needs of the learners. That is why ESP is associated with needs analysis. To acknowledge the students' specific purpose and their goals of studying English, a needs analysis helps to determine what is necessary to achieve this.

Accordingly, ME is defined as the English language used by seafarers both at sea and in port and by individuals working in the shipping and shipbuilding industry. It is oriented to individuals who need to be fluent in English for communicating successfully while on board and ashore (Bocanegra-Valle, 2012). Also, it is mentioned that ME has five branches, including English for maritime communications, English for maritime commerce, English for maritime law, English for marine engineering, and English for shipbuilding. Meanwhile, in his research, Dirgeyasa (2018) sums up that ME has to cover maritime and language skills and its features, such as listening and speaking for communication, reading and writing, grammar, applied terminologies, and SMCP content (Dirgeyasa, 2018).

2.2. Online Teaching and Learning

Vast development in technology and education has been positively rooted in integrating digital technologies into the teaching and learning process. Various teaching and learning platforms become another alternative for students to get supplementary learning and interact with other users, such as teachers and their classmates. Salavati (2016) added that it had

become a demand and challenge to use digital technologies in the teaching and learning process. Correspondingly, Howard and Major (2004) described a series of specific guidelines in online teaching and learning involving (1) stimulate interaction and be generative; (2) encourage learners to develop learning skills and strategies when they use online English resources; (3) online English resources should link to each other to develop a progression of skills, understandings, and language item; (4) have appropriate instructions; be attractive and flexible. Also, Palz (2003) determined principles of online teaching and learning, which include, (1) Let the students do most of the work (actively involved); (2) Interactivity (within the students and with the instructor/teacher); (3) Strive for presence, including social presence (attendance), cognitive presence (discussion on the topic), or teaching presence (instruction).

2.3. Digital Platform

Digital platforms have broad definitions and scope. Asadullah et al. (2018) explained that it had become a new model of organizing economic and social activities, and somehow it transforms the landscape of several industries such as transportation (e.g., Uber, Grab), hospitality (e.g., Airbnb), and software development (e.g., Google, Android). Also, Koh and Fichman (2014: 977) defined the digital platform as two-sided networks that facilitate interactions between a distinct but interdependent group of users. In other words, digital platforms can be understood as a digital medium that can be integrated with any distinct field which facilitates the organization and interaction of its users. In terms of education, Anderson (2013) explained that apps developers use the methodology to use technology to give personalized study material, feedback and progress report, and distributed practice. It convinces users that learning is more manageable and fun through the apps. He added web-based vs. downloaded translation language proficiency levels as factors that need to be considered for platform development. To create a user-friendly platform, UI (user interface) and UX (user experience) are also essential factors that need to be considered. UI refers to a system and a user interacting with each other through commands or techniques to operate the system, input data, and use the contents (Joo, 2017). Meanwhile, he defined UX as the overall experience related to the perception (emotion and thought), reaction, and behavior that a user feels and thinks through his or her direct or indirect use of a system, product, content, or service.

3. METHOD

This is a preliminary research for designing an apps prototype based on Design and Development Research, or DDR. So, a needs analysis is conducted to find out the

requirement for the design. Richey and Klein (2007) describe product development research procedures in conducting a needs analysis, information gathering, designing a product, and evaluating the product. Meanwhile, the needs analysis itself cannot be separated from ESP. It is considered a prerequisite in any course design (Richterich and Chancerel, 1987 in Li, 2014). Li (2014) continued to explain that needs analysis is one of ESP's key stages beside syllabus design, selection and production of materials, teaching and learning, and evaluation.

Furthermore, she explained that need analysis involves gathering information that will be the foundation for developing a curriculum to meet a particular group of learners' learning needs. Nunan (1994, p 54) mentioned that need analysis should include the criteria and rationale for grouping learners, the selection and sequencing of course content, methodology, course length, and intensity and duration. Accordingly, this research implements analysis based on standard guideline (Krippendorf, 2004) and target situation analysis (Hutchinson and water, 1987) for creating ME learning platform or apps for maritime learners

This study uses questionnaires shared and completed randomly by 318 cadets from different majors at Sekolah Tinggi Ilmu Pelayaran (Maritime Higher Education Institute) Jakarta. It was presented in Bahasa Indonesia to avoid misunderstanding. The questionnaire was developed consisting three parts. The first part encompassed general questions about background of the cadets: prior education and current education. The second part of the questionnaire consisted statement and questions about their Maritime English learning experience. In the third part of the questionnaire, the cadets were asked about their needs if there were a Maritime English learning apps designer particularly for the target learners.

The data were examined and arranged based on the most frequent answers. Then, the data and the standard guideline of ME learning were compared and analysed by the researcher to create the essential concept of ME apps design.

4. RESULT AND DISCUSSION

The research results are generated based on the standard guidelines (Krippendorf, 2004) and target situation analysis (Hutchinson and water, 1987). Standard guideline of needs analysis is gathered from a theoretical review from the expert in the field. In this case, it covers research findings, books, and other guidelines for Maritime English learning. Next, Target Situation Analysis (TSA) is defined as a needs analysis that mainly focuses on students' needs at the end of a language course (Robinson, 1991). Data of the needs can be gathered in different ways, including spreading a questionnaire to the target learners. In this context, ME learning content can be gathered by asking the target learners about their target learning and goals.

Table 1.
Representation of the questionnaire result.

Theme	Answer	Representation
Education background		
last education	Non-Maritime high school	78%
current activity	Cadets	98%
ME learning background		
learning experiences	1-4 years	60%
learning media	Book	67%
	YouTube	56%
Needs for ME Apps		
Expected content	to prepare future career in maritime sector	83%
	to improve communication skills	73%
	emphasizing on speaking and listening skills	87%
	emphasizing on pronunciation	76%
UI/UX	emphasizing on audio visual learning	81%
	English-Bahasa Indonesia instructions	78%
Expected subscription price	50,000 rupiah/month	95%

Based on the table above, 78% of the respondents were from non-maritime high school, who did not have any enough background knowledge of ME when they started learning it at higher education level. 60% of the cadets studied Maritime English ranging from one to four years. The learning media they are exposed to are varied: 67% from books and 56% from You Tube learning videos. Their purposes of learning Maritime English are varied: many of them (83%) learn it to prepare for a future career in the maritime sector, while 73% of them want to improve their communication skills. Most of the cadets support a provision of ME learning platform, with more on speaking and listening skills (87%) and pronunciation (76%). Accordingly, 81% of the cadets are more interested to use a learning platform that includes more audio-visual learning material. Next, instructions in Bahasa Indonesian and English are required by many of them (78%). Furthermore, almost all the cadets (95%) agree with a subscription fee of 50,000 rupiah per month.

4.1. The Required ME Learning Platform

Based on the literature review above and the results of the questionnaire spread to the target learners, there are some similarities and requirements of a learning platform for ME, including (1) Stimulate interaction and be generative; (2) Encourage learners to develop learning skills and strategies when they use online English resources; (3) Online English resources should link to each other to develop a progression of skills, understandings, and language item; (4) Have appropriate instructions; (5) Be attractive and flexible; (6) Convinces users that learning is more comfortable and more fun through the apps; (7) Uses bilingual approach (English - Bahasa Indonesia).

4.2. Content of the ME Learning Platform

Based on the guidelines and the questionnaire result, it is found that the target content for ME learning covers: (1) ME Knowledge; Language skills and features such as listening and speaking for communication, reading and writing, grammar, applied terms, and SMCP; (3) Campus and working requirement for maritime knowledge and communication skills; (4) ME for elementary level.

Table 2.
Needs Analysis of the Required Learning Platform.

	Theory	Questionnaire result	Summary
Content	Content (Dirgeyasa, 2018) 1. Knowledge (maritime content) 2. Language skills and features: 3. Listening and speaking (communication) 4. Reading 5. Writing 6. Grammar, applied terminologies 7. SMCP	1. Campus and working requirement for maritime knowledge and communication skills 2. Speaking and listening skills, ME terms, and pronunciation 3. Elementary level 4. Level of difficulty: medium-hard 5. The needs for sufficient reliable sources	1. Maritime content (IMO, STCW, Model course 3.17) 2. Contextual activities covering the four skills; however, still emphasizing speaking and listening skills 3. Grammar: Marlins test specifications 4. SMCP and maritime terminologies 5. Suggested to start with elementary, which covers the level of difficulty from easy to hard.
Platform	1. Stimulate interaction and be generative. 2. Encourage learners to develop learning skills and strategies when they use online English resources. 3. Online English resources should link to each other to	1. The needs of ME learning platform 2. Suggested form: video, audio, text, PPT. 3. Bilingual (English – Indonesia) 4. Proposed price: 50.000 rupiah/month.	1. ME learning platform. 2. Easy, fun UI and UX to motivate learners in learning. 3. Progression record of content and language skills achievement separately. 4. Clear instructions.

	develop a progression of skills, understandings, and language items. 4. Have appropriate instructions. 5. Be attractive and flexible. 6. Convinces users that learning is more comfortable and more fun through the apps.		5. Ranging from easy – hard practices. 6. Suggested form: video, audio, text, PPT. 7. Bilingual 8. Suggested price: 50.000 rupiah/month
Other considerations	Online teaching and learning principles 1. Let the students do most of the work (actively involve). 2. Interactivity (within the students and with the instructor/teacher). 3. Strive for presence: Social Presence (attendance), Cognitive Presence (discussion on the topic), or Teaching Presence (instruction).	1. Maritime cadets (18-21 y.o.). 2. Background: non-maritime vocational school. 3. Been learning English for 1-2 years. 4. Learn from YouTube and book. 5. Averagely can follow the used material resources.	1. Sufficient explanation supporting to give learners meaningful learning experience. 2. Considering adult learner characteristics. 3. Step by step/ continuing practices. 4. Medium for instructor-student/student-student interactions. 5. Record of visit, open discussion medium. 6. Short and clear instructions.

4.2.1. Content

The questionnaire shows that the learners have average interest in and knowledge of ME. However, it could also mean that their knowledge and interest are still not optimal. In terms of the level of difficulty, the learners do not find it too hard to learn. The result above indicates that the learners need more support and encouragement to require apps in which the UI/UX and content can support and motivate them in learning. Next, the content should cover IMO, STCW, Model Course 3.17, Marlins test specification, SMCP, ME terms. It is suggested to start from the elementary level and cover the four skills, especially listening, speaking, and pronunciation. The learners can start from easy to hard explanations and practices. A study revealed that the lack of language skills of a ship's crew could result in ineffective communication, which is identified as the cause of the many accidents (Ziarati et al., 2011). So, the emphasis on listening and speaking skills is needed as the learners have to be able to communicate well for their work in the future. Besides, the communication skills should also represent communicative language training set in the context of real-life situations at sea (Ziarati et al., 2011).

4.2.2. Platform

Based on the result of the analysis, the major participants are aware of their need to improve their ME ability. However, it appeared that they need more support of sufficient and reliable sources to motivate them to learn the knowledge and the communication skills. The questionnaire result indicates that most of the participants need an ME learning platform in order for them to have a better access to and to practice the required knowledge and skills. So, it is suggested that the platform can be constructed in an easy and fun UI/UX covering the required content. Furthermore, the progression records of content and language skills achievement should be separated. Also, factors like explicit bilingual instruction (Bahasa Indonesia – English) and features (video, audio, text, PPT) also need to be incorporated.

In general, ME learning application platforms are essential to optimize ME learning. Learning with apps is considered suitable particularly for adult learners since they are characterized as independent, practical, responsible, voluntary, and motivated learners. In other words, they are more ready to study and explore the respective knowledge actively and are motivated to learn what becomes their immediate needs and requirement

(Kapur, 2015). Beside designing a ME learning platform, the designers/researchers must incorporate the applicable content and platform to bring a successful learning experience to the learners.

5. CONCLUSION

Needs analysis is a prerequisite to designing the ME learning platform for ME learners in Indonesia. The required ME learning platforms target study achievement and a better future career in maritime sectors in this context. It suggested starting with the elementary level, which underlines Maritime knowledge and communication skills. Accordingly, the platforms have to be comfortable and fun by considering their UI and UX design. This platform can be useful and beneficial for ME learners in Indonesia. It provides an alternative to teach as well as to teach ME, which will be designed by considering both standard guidelines used in ME and includes learners' perspectives to reach their target learning and goals for a better career in the maritime sector. Learning apps aim to create not only quality and meaningful, but also successful learning experiences that will achieve the desired result of enhancement and changes in the knowledge and skills of the ME learners. Understanding the characteristics and needs of adult learners for ME will help the researchers build the content of ME apps.

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